

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 31

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte DONALD J. MILLER, and SUSANNE SELMAN

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Appeal No. 1998-3386  
Application No. 08/265,698

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ON BRIEF

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Before WINTERS, ADAMS, and MILLS, Administrative Patent Judges.

ADAMS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on the appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 1, 3, 5-10, 12, 14-17, 21 and 23-33, which are all the claims pending in the application.

Claim 1 is illustrative of the subject matter on appeal and is reproduced below:

1. A method of degrading compounds contained in a liquid or solid waste stream, comprising the steps of:
  - a) providing in any order i) a reaction containing means having a semi-permeable membrane partition and first and second sides of said partition, ii) a manganese peroxidase derived from a white rot fungus, for which said membrane is not permeable, and iii) at least one substrate for said peroxidase;
  - b) adding in any order, under conditions suitable and for a time sufficient to produce a reaction intermediate that is capable of degrading compounds in said waste stream, i) to said first side of said partition, said peroxidase and said substrate to create a reaction mixture, thereby generating a reaction intermediate for which said membrane is permeable, ii) to said second side of said partition, said compound-containing waste stream; and
  - c) applying a pressure to said reaction mixture on said first side of said partition so as to force said reaction intermediate across said membrane into said compound-containing waste stream, under conditions suitable and for a time sufficient to degrade said compounds by the action of said intermediate upon said compounds, thereby degrading said compounds.

The reference relied upon by the examiner is:

Lackner et al. (Lackner), "Oxidative degradation of high molecular weight chlorolignin by manganese peroxidase of Phanerochaete chrysosporium," Biochemical and Biophysical Research Communications, Vol. 178, No. 3, pp. 1092-1098 (1991)

#### GROUND OF REJECTION

Claims 1, 3, 5-10, 12, 14-17, 21 and 23-33 are rejected under 35 U.S.C.

§ 103 as being unpatentable over Lackner.

We reverse.

## DISCUSSION

In reaching our decision in this appeal, we have given careful consideration to the appellants' specification and claims, and to the respective positions articulated by the appellants and the examiner. We make reference to the examiner's Answer<sup>1</sup> for the examiner's reasoning in support of the rejection. We further reference appellants' Brief<sup>2</sup>, and appellants' Reply Brief<sup>3</sup> for the appellants' arguments in favor of patentability.

### THE REJECTION UNDER 35 U.S.C. § 103:

The initial burden of presenting a prima facie case of obviousness rests on the examiner. In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

The main issue in this appeal is whether Lackner teaches "applying a pressure" to one side of a membrane so as to force the reaction intermediate across the membrane into a compound-containing waste stream. The examiner states (Answer, page 5) "that pressure exists, as osmotic pressure, and [a]ppellants have merely optimized the pressure." The specification discloses (page 8) that "[w]hile the present invention contemplates that the reactive intermediate may passively travel through the membrane, this approach is inefficient. ... It is preferred, therefore, that the intermediate be subjected to a force to drive it across the membrane." Therefore, it appears to us that appellants intend some force greater than diffusion or osmosis when they use the phrase "applying a pressure" in the

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<sup>1</sup> Paper No. 28, mailed March 23, 1998.

<sup>2</sup> Paper No. 27, received November 7, 1997.

claims. However, the examiner considers appellants' reference to "applying a pressure" (Answer, page 5) "to be no more than the standard optimization of a result effective variable, i.e., the pressure differential across the membrane that will force the intermediate into the waste stream side." The examiner concludes (Answer, page 10) that for "[a]ppellants to consider that a pressure gradient increase (over and above that due to the osmotic pressure) across the prior art membrane provides for a patentable distinction, discounts the most basic knowledge of those in the art."

In response, appellants argue (Brief, page 16) that:

Lackner et al only utilize diffusion and do not provide a pressure gradient:

Due to diffusion limitations, a slower degradation rate than without dialysis tubing was observed (Lackner et al, p. 1096).

...

Rather than teach the use of pressure as claimed in the present invention, Lackner et al suggest removal of the membrane barrier. This statement leads one skilled in the art to a path divergent from the path taken by the [a]ppellants, and as such, teaches away.

In contrast to appellants' position that Lackner teaches away, the examiner argues that removing the dialysis tubing "would defeat the whole purpose of Lackner et al teaching, i.e., keep the waste separate from the peroxidase."

We remind the examiner that in determining whether the claimed invention is obvious, a prior art reference must be read as a whole and consideration must be given where the reference teaches away from the claimed invention. Akzo N.V.,

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<sup>3</sup> Paper No. 29, received May, 14, 1998.

Aramide Maatschappij v.o.f. v. United States Intl Trade Comm'n, 808 F.2d 1471, 1481, 1 USPQ2d 1241, 1246 (Fed. Cir. 1986). The Lackner reference is directed to demonstrating “the involvement of  $Mn^{3+}$  and manganese peroxidase in the biodegradation of chlorolignin by P. chrysosporium” (Lackner, page 1093, first full paragraph). Thus in contrast to the examiner’s position, the whole purpose of the dialysis tubing in Lackner was to separate some of the reagents involved in the biodegradation of chlorolignin to identify the active agents. For example, Lackner state (page 1095) “[t]herefore, it seemed likely that mycelium bound manganese peroxidase might play an important role in bleach plant effluent degradation. To show this, we performed subsequent experiments during which the high molecular weight chlorolignin was not added directly to the cultures but packed into dialysis tubings....” In fact, Lackner teach (page 1094) the lignin, “waste,” and the peroxidase together in a “semicontinuous culture.” Thus, in contrast to the examiner’s position, it appears to us that removing the tubing would not defeat “the whole purpose of Lackner.”

We remind the examiner that “it is impermissible within the framework of section 103 to pick and choose from any one reference only so much of it as will support a given position to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one skilled in the art.” In re Wesslau, 353 F.2d 238, 241, 147 USPQ 391, 393 (CCPA 1965); see also In re Mercier, 515 F.2d 1161, 1165-66, 185 USPQ 774, 778 (CCPA 1975). Instead, obviousness can only be established by combining or modifying the teachings of the

prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See In re Fine, 837 F.2d 1071, 1075, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). On this record we find no suggestion to modify Lackner, to apply pressure to said reaction mixture, as would be necessary to arrive at the claimed invention.

The examiner suggests (Answer, page 5) that “pressure” is a result effective variable and therefore “optimization of result effective processes [sic] parameters is well within the skill of those in the art.” However, this determination requires that “pressure” be recognized as a result effective variable in this system. In re Antonie, 559 F.2d 618, 620, 195 USPQ 6, 9 (CCPA 1977). Applying pressure is not suggested by the teachings of Lackner. Lackner made no attempt to apply pressure, but instead, as discussed supra, recognized that “[d]ue to diffusion limitation, a slower degradation rate than without dialysis tubing was observed.” Lackner does not reveal the concept of applying pressure that appellant discovered, and the examiner has provided us with no other basis to find the claimed invention obviousness.

Therefore, on this record we are compelled to find that the examiner failed to meet his burden of establishing a prima facie case of obviousness. Where the examiner fails to establish a prima facie case, the rejection is improper and will be overturned. In re Fine, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988).

Accordingly, we reverse the rejection of claims 1, 3, 5-10, 12, 14-17, 21 and 23-33 under 35 U.S.C. § 103 as being unpatentable over Lackner.

Having determined that the examiner has not established a prima facie case of obviousness, we find it unnecessary to discuss the Bollag Declaration executed March 21, 1997, relied on by appellants to rebut any such prima facie case.

REVERSED

Sherman D. Winters	)	
Administrative Patent Judge	)	
	)	
	)	BOARD OF PATENT
Donald E. Adams	)	
Administrative Patent Judge	)	APPEALS AND
	)	
	)	INTERFERENCES
	)	
Demetra J. Mills	)	
Administrative Patent Judge	)	

DA/dm

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